

VINEYARD WIRE HANGER

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09/736052
AWINSTON
11-24-09

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TITLE OF THE INVENTION
VINEYARD WIRE HANGER

CROSS-REFERENCE TO RELATED APPLICATIONS

Not Applicable.

5 STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH
OR DEVELOPMENT

Not Applicable.

BACKGROUND OF THE INVENTION

1. Field of Invention

10 This invention relates to the field of vineyards. More specifically,
the present application is related to a device for retaining a trellis wire,
while allowing the trellis wire to be tightened after being stretched.

2. Description of the Related Art

15 It is well known in the art of growing grapes to use a trellis wire to
support the grapevines. The trellis wire is typically stretched from stake to
stake, with the ends anchored. Grapevines are typically spaced apart at
intervals of approximately ten feet. The stakes are typically spaced at
intervals of approximately twenty-five feet, with the end posts spaced at
variable lengths. Thus, on a typical trellis wire, any number of grapevines
20 can be supported.

As the grapevines mature and produce fruit, the weight supported on the trellis wire can reach several hundred pounds. As such, the trellis wire has a tendency to stretch over time. It is desirable to maintain the original position of the trellis wire.

Typically, each of the end posts and corresponding stakes have been fabricated from wood. However, due to the weight of the grapevines, and the effects of the weather, the wooden stakes often suffer from rotting and/or warping. As a result, the wooden stakes are now being replaced with steel stakes. The trellis wire is usually carried by both end posts and each stake. With conventional devices, the wire is fixed to each trellis wire support. In order to tighten the trellis wire, each trellis wire support must be loosened or removed. In such devices, if the grapevines are being supported on the trellis wire, replacing or tightening the trellis wire support is difficult.

Several devices have been produced to fasten a trellis wire to a stake, to secure a vine to a trellis wire, or the like. Typical of the art are those devices disclosed in the following U.S. Patents:

<u>Patent No.</u>	<u>Inventor(s)</u>	<u>Issue Date</u>
503,161	R. Raby	Aug. 15, 1893
587,365	T. J. Forde	Aug. 3, 1897
1,488,380	B. S. Blake	Mar. 25, 1924
4,270,581	G. L. Claxton et al.	June 2, 1981
4,329,811	D. J. Coulson	May 18, 1982
4,792,254	C. M. Platten	Dec. 20, 1988
5,438,795	J. M. Galbraith	Aug. 8, 1995
5,916,028	P. A. Downer et al.	June 29, 1999
5,966,867	P. A. Downer et al.	Oct. 19, 1999

Of these devices, those disclosed by Raby ('161) and Forde ('365) are provided for securing a vine or hedge to a trellis wire. These devices do not consider the problems associated with tightening the trellis wire that has become stretched during use.

5 Blake ('380) teaches a trellis fabricated using clips to secure guy wires to stakes. The fabrication of the '380 device is intended to permit the trellis to be readily collapsed in order to reduce the time required to disentangle the runners of the plant being supported thereby.

10 The '254 device disclosed by Platten is provided for supporting a wire used in an electric fence. The '254 device is securable to a fence standard or post and defines an opening through which the wire is inserted and in which the wire is allowed to slide.

15 The remaining devices are provided for supporting a trellis wire on a post or stake. The Claxton et al. ('581) device is a clip configured to engage the trellis wire. As the clip is manipulated, the trellis wire is deformed around a portion of the post.

20 The '811 device disclosed by Coulson is a stake having a cross-arm disposed at the top thereof, each end of the cross-arm defining a slot for receiving the trellis wire. The upper edge of the cross-arm is disposed at an angle to prevent the cross-arm from moving vertically with respect to the stake.

Galbraith ('795) discloses a bracket configured to be nailed to a wooden post. The bracket terminates on either side of the wooden post

and defines an opening at each end for receiving a trellis wire.

Downer, ('028) teaches a one-piece trellis wire support device including a wire member deformed to encompass a grape stake. Opposite ends of the wire member are disposed at opposed directions, with one end disposed on either side of the grape stake. The trellis wire is supported on either terminal end of the wire member.

Finally, in the '867 device, Downer discloses a rigid cross arm that is mountable to a grape stake. An opening is provided toward one end of the cross-arm for threadably receiving the trellis wire.

BRIEF SUMMARY OF THE INVENTION

The present invention is a hanger designed to be releasably and adjustably mounted on a grape stake for supporting a vineyard or trellis wire. The hanger is further designed to allow the trellis wire to be tensioned after being installed and during use, without requiring any of a plurality of the hangers to be loosened, removed, or otherwise disturbed.

The hanger includes a bracket configured to be mounted on a conventional grape stake. The bracket defines a central portion configured to substantially encompass a portion of the stake. The bracket further defines a pair of terminal ends that are disposed parallel to each other. A wire receiving member defining a central opening is received between the terminal ends of the bracket. A portion of the central opening is exposed above the bracket terminal ends for loosely receiving the trellis wire. A spacer is disposed between the wire receiving member and one of the

bracket terminal ends. A bolt is received through cooperating openings defined by each of the bracket terminal ends and the spacer, and through the wire receiving member central opening to dispose each member in a fixed relative position.

5 To install the hanger of the present invention, a bracket is positioned on each stake. The wire receiving member is rotated about the bolt to expose a receiving slot. The trellis wire is then placed through the receiving slot to rest on the top surface of the bracket terminal ends and the spacer. The wire receiving member is then rotated to position the receiving slot such that the trellis wire cannot be removed from with the central opening thereof, and the bolt is tightened. After the bolt has been tightened with the trellis wire in place, the trellis wire may be adjusted independently of the bracket.

15 BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

The above mentioned features of the invention will become more clearly understood from the following detailed description of the invention read together with the drawings in which:

20 FIG. 1 is a perspective view of the vineyard wire hanger constructed in accordance with several features of the present invention;

FIG. 2 illustrates a front elevation view, partially in section, of the vineyard wire hanger taken at 2-2 of FIG. 1;

FIG. 3 is a top plan view of the vineyard wire hanger of FIG. 1;

FIG. 4 illustrates a side elevation view of the vineyard wire hanger of FIG. 1 wherein a vineyard wire is being installed;

FIG. 5 illustrates a side elevation view of the vineyard wire hanger of FIG. 1 after installation of the a vineyard wire; and

FIG. 6 illustrates the installation of several vineyard wire hangers of the present invention in a complete grapevine support system.

DETAILED DESCRIPTION OF THE INVENTION

A vineyard wire hanger incorporating various features of the present invention is illustrated generally at **10** in the figures. The vineyard wire hanger, or hanger **10**, is designed to be releasably and adjustably mounted on a grape stake **12** for supporting a vineyard or trellis wire **14**. Moreover, in the preferred embodiment the hanger **10** is designed to allow the trellis wire **14** to be tensioned after being installed and during use, without requiring the hanger **10** to be loosened, removed, or otherwise disturbed.

As illustrated in FIG. 1, the hanger **10** includes a bracket **16** configured to be mounted on a conventional grape stake **12**. The bracket **16** defines a central portion **18** configured to substantially encompass a portion of the stake **12**. The bracket **16** further defines a pair of terminal ends **20** that are disposed parallel to each other. A wire receiving member **22** is received between the terminal ends **20** of the bracket **16**. The wire receiving member **22** defines a central opening **24**, a portion of which is exposed above the bracket terminal ends **20**, the exposed portion of the

opening **24** being provided for loosely receiving the trellis wire **14**. Further illustrated is a spacer **26** disposed between the wire receiving member **22** and one of the bracket terminal ends **20**. Although illustrated, it is foreseeable in some applications that the spacer **26** is not required. Finally, a bolt **28** is provided for securing the wire receiving member **22**, the bracket terminal ends **20**, and, when provided, the spacer **26** in a fixed relative position.

As illustrated in FIG. 2, the bracket terminal ends **20** define cooperating openings **30** for receiving the bolt post **34**. The bolt post **34** is further received through the central opening **24** of the wire receiving member **22** and, when provided, an opening **32** defined by the spacer **26**. When tightened with a nut **36**, the bracket terminal ends **20**, the wire receiving member **22** and spacer **26** are brought into contact one with another such that their relative positions are fixed. As illustrated, the central opening **24** of the wire receiving member **22** is dimensioned such that when a trellis wire **14** is received therein and above the bracket **16**, a gap **38** is defined within the central opening **24** of the wire receiving member **22** to allow the trellis wire **14** to slide freely therein.

FIG. 3 illustrates a plan view of this construction. Further illustrated in FIG. 3 is one configuration of the central portion **18** of the bracket **16**. In the illustrated embodiment, the central portion **18** of the bracket **16** is configured to contact at least the extremities of the stake **12** such that when the bolt **28** is tightened, the position of the bracket **16** with respect to the stake **12** is fixed. To this extent, it will be recognized by

those skilled in the art that the configuration of the central portion 18 of the bracket 16 may be configured to closely follow the contours of the stake 12. For stakes 12 having a cross-section other than that illustrated, it will be understood that the central portion 18 of the bracket 16 will be adapted accordingly.

FIGS. 4 and 5 illustrate the installation of the trellis wire 14. After the bracket 16 has been positioned on the stake 12, the wire receiving member 22 is rotated about the bolt 28 to expose a receiving slot 40. The trellis wire 14 is then placed through the receiving slot 40 to rest on the top surface of the bracket terminal ends 20 and the spacer 26. The wire receiving member 22 is then rotated as indicated by the direction arrow 42, and the bolt 28 is tightened as described above. Of course, the wire receiving member 22 may be rotated in either direction, so long as the receiving slot 40 is disposed such that the trellis wire 14 cannot be removed from with the central opening 24 thereof. After the bolt 28 has been tightened with the trellis wire 14 in place, the trellis wire 14 may be adjusted independently of the hanger 10.

Illustrated in FIG. 6 is a grape vine support system wherein three grape stakes 12 are disposed at intervals between two end posts 44. In the illustrated embodiment, the trellis wire 14 is received through each end post 44 and is connected at either end to an anchor wire 46 via a turnbuckle 48. The further end of each anchor wire 46 is connected to an anchor 50 which is secured into the ground. Tightening of the trellis wire 14 in this embodiment is accomplished by operating one or both of the

turnbuckles 48. Because a gap 38 is provided between the trellis wire 14 and the wire receiving member 22 of each hanger 10, it will be seen that operating either turnbuckle 48 will tighten the entire length of trellis wire 14 as the trellis wire 14 is allowed to freely slide within each hanger 10.

5 From the foregoing description, it will be recognized by those skilled in the art that a vineyard wire hanger offering advantages over the prior art has been provided. Specifically, the hanger is releasably and adjustably mounted on a grape stake for supporting a vineyard or trellis wire. Further, the hanger is designed to allow the trellis wire to be
10 tensioned after being installed and during use, without requiring any of a plurality of the hangers supporting the wire to be loosened, removed, or otherwise disturbed.

15 While a preferred embodiment has been shown and described, it will be understood that it is not intended to limit the disclosure, but rather it is intended to cover all modifications and alternate methods falling within the spirit and the scope of the invention as defined in the appended claims.